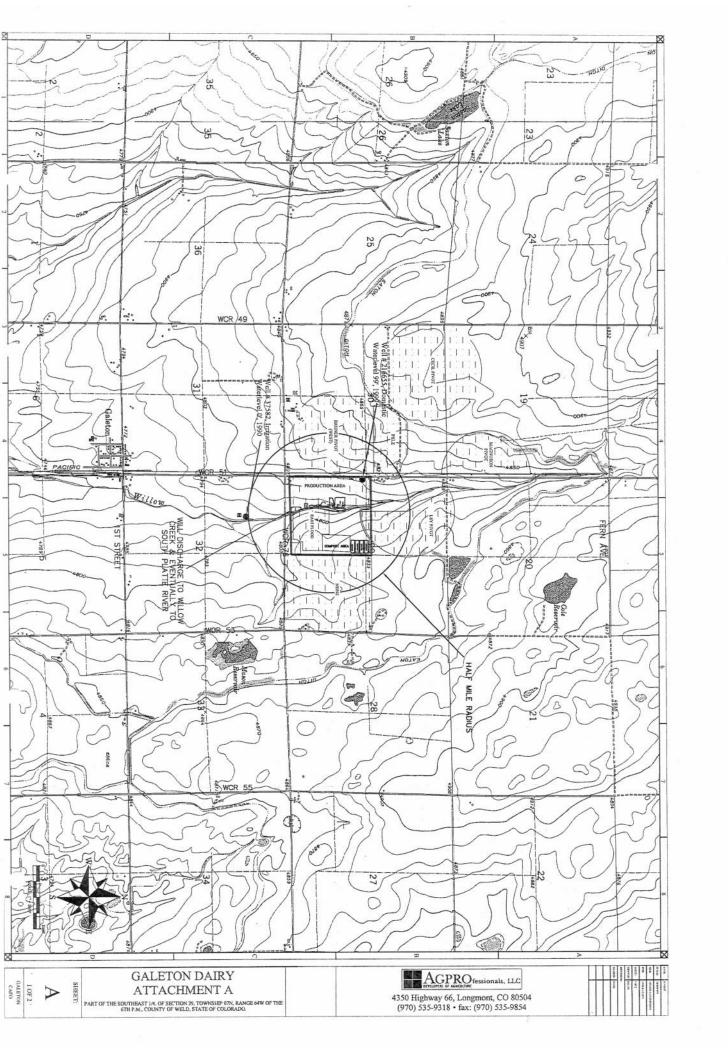
APPENDIX A

NUTRIENT MANAGEMENT PLAN TERMS (1 – 6)

1) LAND APPLICATION FIELD MAPS



APPENDIX B

NUTRIENT MANAGEMENT PLAN TERMS

2) LAND APPLICATION INFORMATION

NMP TERMS - 2) LAND APPLICATION FIELDS

All land application fields are listed below.

Table B-1 - Land Application Fields

Field Identification	Latitude ¹	Longitude ²	Spreadable Acres ³
Magnuson Pivot	40.554520	-104.584707	81
Cecil Pivot	40.549246	-104.595560	187
Pelz	40.545060	-104.587403	54
Bruner Pivot	40.540400	-104.587779	128
Ley Pivot	40.547719	-104577597	115
East Flood	40.540482	-104.577172	22
Heinz	40.539893	-104.569596	152
			739
			10

¹Enter latitude in decimal degrees.

²Enter longitude in decimal degrees [number should be negative (eg. -104.3315)].

³Field acreages reduced by any setbacks, buffers, or otherwise unspreadable areas.

NMP TERMS - 2) LAND APPLICATION CROPS

Potential crops or other uses for <u>each</u> land application field are listed below. Crops in the 5 year rotation are listed per field. Additional crops that might possibly be grown on the operation are listed as field "all".

Table -B-1 - Potential Land Application Field Crops

Field Identification	Стор	Realistic Yield Goal	Yield Unit (bushels, tons, etc.)	Source (see Appendix C)
Ley, Bruner, Flood, Magnuson, Cecil, Pelz, Heinz	Corn silage	26.2	Tons	County Stats
Ley, Bruner, Magnuson, Cecil, Pelz, Heinz	Alfalfa	5.3	Tons	County Stats
All	Corn Grain	201.4	Bu	County Stats
All	Sorghum silage	22	Tons	CSU FS
All	Sorghum grain	65	Bu	CSU FS
All	Sudex silage	11	Tons	CSU FS
All	Sudex hay	5.5	Tons	CSU FS
All	Triticale silage	12	Tons	County Stats, Calc
All	Triticale hay	5	Tons	County Stats, Calc
All	Wheat silage	12	Tons	County Stats, Calc
All	Wheat hay	5	Tons	County Stats, Calc
All	Winter wheat grain	71	Bu	County Stats
All	Spring wheat grain	62	Bu	County Stats
All	Oat silage	14	Tons	County Stats, Calc
All	Oat hay	5.2	Tons	County Stats, Calc
All	Oat grain	91	Bu	County Stats
All	Pasture/grass/hay	4.7	Tons	County Stats
All	Sugar Beets	30.1	Tons	County Stats
All	Millet	35	Bu	State Stats
All	Sunflower	1348	Lbs	County Stats
All	Dry Beans	2255	Lbs	County Stats

APPENDIX C

NUTRIENT MANAGEMENT PLAN TERMS

3) EXPECTED CROP YIELD INFORMATION

Yield goals are based upon a variety of sources and are indicated in Table B-2:

Field: an average of the last 5 years of suitable data, plus10%. Years where yields were affected by drought, hail, insufficient nutrient availability or water, or other problems which would cause unnatural yield loss will not be included.

Farm: where a 5 year average does not exist but data from surrounding fields which are of similar productivity do exist, these yields will be included in the 5 year average. This is also the case where a whole farm yield is monitored rather than yields on individual fields. Where data on individual fields is kept but yield is similar across the farm, the data may be pooled together for simplicity.

Where a 5 year average has not been determined, one of several methods for determining yield goal, depending upon the availability of information, will be used.

- County or State Stats Ag statistics for the county and crop 5 years of data + 10%
- AGPRO data from nearby farms, 5 years + 10%
- CES-FS Cooperative Extension bulletin 568A or a production publication plus 10%

Calc: calculations will be used if a grain yield goal is known but not a forage yield goal for the same crop, based upon the following data:

Olsen Lab – "Guidelines for Fertilizer Recommendations, Plant Tissue Analysis, and Water Analysis" (available at their website www.olsenlab.com)

Oat hay yield goal (t/a) x 17.5 = grain yield goal (bu/a)

Forage sorghum yield goal (t/a) x 20 = grain yield

Sorghum silage yield goal $(t/a) \times 6 = grain yield$

Servi-Tech Lab (Crop File 1.02.022 attached)

Corn silage yield goal (t/a) x 7.5 = grain yield, although this will vary with moisture and quality.

Small grain hay $(t/a) \times 14 = grain yield$

Small grain silage $(t/a) \times 6 = grain yield$

Triticale yields will be based upon potential wheat yield if Triticale yields are not known (KSU fact sheet MF-2227)

APPENDIX D

NUTRIENT MANAGEMENT PLAN TERMS

4) NUTRIENT BUDGET INFORMATION

Formulas are provided using recommendations from Cooperative Extension offices from Colorado and surrounding states, Olsen Lab, Servi-Tech Lab, and Midwest Lab. Any one of these formulas might be used to make a recommendation for a given crop in a single year, but two different formulas will not be used at the same time to make in season adjustments for the same crop. All of these laboratories are regionally based. They consider the recommendations from surrounding land grant universities as well as the most current research available. Colorado Cooperative Extension has found Midwest Lab's and ServiTech Lab's recommendations to be comparable to CSU's recommendations (From the Ground Up, Agronomy News, Cooperative Extension, CSU, Vol 24:1, April 2004). Olsen's Lab was not researched. Rather than hand calculating recommendations, the printed results on soil test results from the afore mentioned labs might also be used.

4) NUTRIENT BUDGET INFORMATION (yield goals are presented in Appendices B and C)

Cooperative Extension Nutrient Budget Information:

	ension Nutrient Budget Information: Manure and Process Wastewater Application Rate	Description of Method to be Used				
Crop:	Calculated Using:	(calculation, look-up table, etc.):				
Corn Silage	 X CSUCE Published Fertilizer Suggestions □ Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method 	35+(7.5*YG (tons/a) Tables 7A-8 CSU Bulletin #568A				
Corn Grain	 X CSUCE Published Fertilizer Suggestions □ Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method 	35 + (1.2 * YG (bu/acre)) Tables 7b. CSU Bulletin #568A				
Sorghum Silage	 X CSUCE Published Fertilizer Suggestions □ Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method 	9 * YG (tons/A) Tables 7d. CSU Bulletin #568A				
Sorghum Grain	X CSUCE Published Fertilizer Suggestions ☐ Adjacent State CE-Published Fertilizer Suggestions ☐ CNMP Method that meets USDA-NRCS standards ☐ CO NRCS NMP guidelines ☐ Department-approved Method	1.2 * YG (lbs/A) Tables 7c. CSU Bulletin #568A				
Triticale Hay & Silage	 □ CSUCE Published Fertilizer Suggestions □ Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines X Department-approved Method 	yield goal (lbs/a DM) * (% protein/6.25/100)/.66 multiply silage yield by 0.4 to get dry matter of silage N content/efficiency use factor Where protein is not known, 9% is used KSU Bulletin MF-2227				
Oat Hay & Silage	 X CSUCE Published Fertilizer Suggestions □ Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method 	YG (tons wet)*2000 lb/t*1.6% N/100 Multiply silage yield by 0.4 to get dry matter of silage Crop removal CSU 568A.				
Spring Seeded Small Grain	 X CSUCE Published Fertilizer Suggestions □ Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method 	125 lbs N per 100 bu/A, minus 20 lb N/a for each 10 bu/A difference CSU Do-It-Yourself Manure Mgt Plan				
Winter Wheat Grain	□ CSUCE Published Fertilizer Suggestions X Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method	YG (bu/a) * 1.75 KSU Bulletin C-529 Wheat Production Handbook, 1997				

Cooperative Extension Nutrient Budget Information:

Crop:	Manure and Process Wastewater Application Rate Calculated Using:	Description of Method to be Used (calculation, look-up table, etc.):				
Wheat	 □ CSUCE Published Fertilizer Suggestions X Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines 	Convert yield to grain and fertilize as for grain				
Silage	☐ Department-approved Method	KSU Bulletin MF-1072 Small Grain Cereals for Forage				
Alfalfa	X CSUCE Published Fertilizer Suggestions ☐ Adjacent State CE-Published Fertilizer Suggestions ☐ CNMP Method that meets USDA-NRCS standards ☐ CO NRCS NMP guidelines ☐ Department-approved Method	((YG*2000)*(% Protein/6.25)*(soil factor))/0.66) Soil factor 0.5-0.7 for sandy to clay soil, respectively CSU Soil Publication #0.565 & 0.566				
Sudangrass/	 □ CSUCE Published Fertilizer Suggestions X Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards 	YG (tons/a DM) * 40 lbs N/ton				
Sudex Hay	☐ CO NRCS NMP guidelines ☐ Department-approved Method	KSU Bulletin MF-1036				
Sunflowers	 X CSUCE Published Fertilizer Suggestions X Adjacent State CE-Published Fertilizer Suggestions □ CNMP Method that meets USDA-NRCS standards □ CO NRCS NMP guidelines □ Department-approved Method 	YG (lb/a) * 0.065 lbs N/lb grain High Plains Sunflower Production Handbook				
Grass/hay	X CSUCE Published Fertilizer Suggestions Adjacent State CE-Published Fertilizer Suggestions CNMP Method that meets USDA-NRCS standards CO NRCS NMP guidelines Department-approved Method	185 lbs N/ton – 40 lbs N per ton for each ton yield goal less than a 4 ton yield goal (N credit to 1' soils sample) Reference is CSU 568A.				
Small grain pasture and grain	X CSUCE Published Fertilizer Suggestions ☐ Adjacent State CE-Published Fertilizer Suggestions ☐ CNMP Method that meets USDA-NRCS standards ☐ CO NRCS NMP guidelines ☐ Department-approved Method	(animals/acre) x expected weight gain (lb/hd) x 0.4 = lbs N/a OR (Winter wheat recommendation plus 30-50 lbs N) Soil publication #0.565				
Dry beans	X CSUCE Published Fertilizer Suggestions ☐ Adjacent State CE-Published Fertilizer Suggestions ☐ CNMP Method that meets USDA-NRCS standards ☐ CO NRCS NMP guidelines ☐ Department-approved Method	YG (lbs/a) * .031/.66 CSU published N content (3.1%N) / use efficiency factor				

Formulas for calculating nutrient budgets

☐ CSUCE Published Fertilizer Suggestions

- ☐ Adjacent State CE-Published Fertilizer Suggestions
- ☐ CNMP Method that meets USDA-NRCS standards
- ☐ CO NRCS NMP guidelines
- X Department-approved Method

Olsen Laboratories current formulas, lbs. N/yield unit (where not otherwise specified, multiply by yield goal as presented in Appendices B and C)

Corn silage – multiply silage yield goal by 7 and use grain recommendation

Corn grain – (0.90)(YG, bu/a) + 50 = lb N/bu

1-(0.0008)(YG, bu/a)

Sorghum/Sudex silage - multiply silage yield goal by 6 and use grain recommendation

Sorghum/Sudex hay - multiply hay yield goal by 20 and use grain recommendation

Sorghum grain - (YG)(1.2 N/bu) + 30 lb N

Triticale silage - 10 lb N/ton

Triticale hay -30 lb N/ton

Summer fallow wheat grain - 1.75 lbs N/bu

Continuous wheat grain - 2.0 lbs N/bu (includes nitrogen for stubble decomposition)

Spring wheat grain - (YG)(2.4 lbs N/bu) - (OM-1)*20

Wheat silage – 10 lb/ton

Wheat hay - 30 lb N/ton

Small grain grazing - 40 lbs N/a (not dependent on yield goal)

Oat silage - 9 lbs N/ton

Oat hay - multiply hay yield goal by 17.5 and use grain recommendation

Oat grain - 1.0 lb N/bu

Irrigated grass - 45 lbs N/ton

 $Dryland\ grass-30\ lbs\ N/ton$

Sugar beets – (YG)(9 lbs N/ton) – 30*%OM – Residual N*1.67(2' soil sample)

Millet - 1.5 lb N/bu

Sunflower – 0.06 lb N/lb

Dry beans – (YG, bu)(2.0 lb N/bu) (+20 lbs N for kidney beans, -30 lbs N if inoculated, +30 lbs

N on sandy soils)

Formulas for calculating nutrient budgets:

- ☐ CSUCE Published Fertilizer Suggestions
- □ Adjacent State CE-Published Fertilizer Suggestions
- ☐ CNMP Method that meets USDA-NRCS standards
- ☐ CO NRCS NMP guidelines
- X Department-approved Method

ServiTech Laboratories current formulas, lbs. N/yield unit (multiply by yield goal as presented in Appendices B and C)

Corn silage - 10 lbs. N/Ton

Corn grain - 1.3 lb N/bu

Sorghum silage - 9 lb N/ton

Sorghum hay - 25 lb N/ton

Sorghum grain - 1.2 lb N/bu

Sudex silage - 7.5 lb N/ton

Sudex hay – 25 lb N/ton

Triticale silage - 10 lb N/ton

Wheat silage - 10 lb N/ton

Winter wheat grain – 1.75 lbs N/bu

Spring wheat grain -2.0 lbs N/bu

Small grain hay (triticale) - 26 lb N/ton

Oat silage - 12 lb N/ton

Oat hay - 25 lb N/ton

Oat grain - 1.0 lb N/bu

Pasture/Grass/Native grass - 40 lbs N/ton

Sugar beets – 7.5 lbs N/ton

Millet - 1.7 lb N/bu

Sunflower - 0.05 lb N/lb

Dry beans - 0.04 lb N/lb

Formulas for calculating nutrient budgets:

Midwest Laboratories current formulas, lbs. N/yield unit (multiply by yield goal as presented in Appendices B and C)

Corn silage - 9.5 lbs. N/Ton

Corn grain - 1.3 lb N/bu

Sorghum silage – 7 lb N/ton

Sorghum grain - 1.3 lb N/bu

Sudex hay - 15 lb/ton

Triticale silage – convert yield to grain, use grain recommendation

Triticale grain - 1.5 lb N/bu

Winter wheat grain - 2.3 lbs N/bu

Wheat silage - convert yield to grain, use grain recommendation

Oat grain - 1.2 lb N/bu

Oat silage - convert yield to grain, use grain recommendation

Pasture/Grass/Native grass - 40 lbs N/ton

Sugar Beets – 8.5 lb N/ton

Millet - 1.6 lbs N/bu

Sunflower – 0.06 lbs N/lb

Dry beans – 0.4 lbs N/bu

Nitrogen Credits

Available Nitrogen in Wastewater (CSU Bulletin 568A, plus personal communication)

1st year N availability in wastewater, sprinkler applied (Organic N * 30%) + (NH₄-N * 55%)

1st year N availability in wastewater, flood applied (Organic N * 30%) + (NH₄-N * 78%)

2nd year N availability in wastewater (Organic N * 10%)

Available Nitrogen in Manure (minimum values)

1st year N availability in manure (Organic N * 25%) + (NH₄-N * % available below) 2nd year N availability in manure (Organic N * 10%)

Available Nitrogen in Compost (minimum values)

1st year N availability in manure (Organic N * 20%) + (NH₄-N * % available below)

2nd year N availability in manure (Organic N * 10%)

NH4-N % available, solid manure and slurry (UN NebGuide G1335).

Inject or immediate incorporation - 95%

Incorporate within 1 day – 50-70%

Incorporate 2-5 days – 0-50%

Incorporate >5 days - 0%

The laboratory's plant available nutrient schedule may also be used.

In the near future these mineralization factors may change, and this nutrient management plan will use the revised values from CSU. In fields which receive a similar amount of manure or wastewater each year, the 2 year mineralization rate may be added together and credited all in one year for simplicity.

Legume Credit- Previous crop, alfalfa

>80% stand 100-140 lbs N/A 60-80% stand 60-100 lbs N/A <60% stand 30-60 lbs N/A

Alfalfa protein to be used in the absence of a forage test (CSU no. 0.565)

Maturity	% Crude Protein	% N
Pre-bud	22-24	3.5-3.8
Bud	20-22	3.2-3.5
Early bloom	17-19	2.7-3.0
Midbloom	14-16	2.2-2.6
Full bloom	<14	< 2.2

Additional nitrogen needs

Crop decomposition

Up to 20 lbs/A additional nitrogen may need to be applied to carbonaceous crop residues.

Starter fertilizer

Regardless of the recommendations for nutrient application, up to 35 lbs of N and 35 lbs P_2O_5 may be added as a starter fertilizer at or just prior to planting in order to ensure nutrient availability to seedlings, promoting a more vigorous plant more capable of utilizing nutrients already in the soil. Any commercial fertilizer applied will be counted towards the total recommendation and subtracted from the gross recommendation in the N credit section ("other") of the rate determination sheet. If 35 lbs N are not required to grow the crop, this amount of starter will still be used.

Small grain grazing

Where small grains are fall grazed, additional nutrient needs based upon animal intake or a flat rate (30-50 lbs N/a) may be applied as outlined in the formulas for CSU and Olsen Lab.

In Season N adjustments

The formulas provided represent the maximum amount of N to be applied with advanced planning. It is not uncommon for nitrogen rates to be adjusted during the growing season. The following outlines procedures which may be used to make in season adjustments. Only one test will be used at any given time of plant growth to provide a recommendation. However, additional tests may be used at other stages of crop growth. For instance, it is possible that a soil test at side dressing could indicate the soil is likely to have enough nitrogen to grow a crop, but a tissue test at the reproductive phase of growth could show the plant is now deficient in nitrogen and needs more N.

Pre-Sidedress Nitrate Test (PSNT)

1 foot soil samples are analyzed for nitrate when corn is 6 to 12" tall. Guidance documents from Cooperative Extension, either from CSU or from a surrounding state, will be used to interpret results.

Tissue testing

Plant samples will be analyzed for nitrogen at the appropriate time, and from the appropriate location on the plant for the given crop. The results will be compared with expected nitrogen content for the plant at the specified growth stage. Deficiencies will be managed with additional N.

Leaf chlorophyll meters & near infrared sensors

There are a number of meters on the market which detect the amount of chlorophyll in leaves. By comparing the chlorophyll meter readings from the reference strips to those from the rest of the field, N sufficiency and the need for additional N can be determined. Pennsylvania State University's tool may be used at first side dress when the corn is at the V6-V8 growth stages (Fact Sheet 53: *The Early Season Chlorophyll Meter Test for Corn*) and Purdue University's tool may be used later in the season when the crop is at the V8-V12 growth stages through pollination (Fact Sheet: AY-317-W, *Determining Nitrogen Fertilizer Side dress Application Needs in Corn Using a Chlorophyll Meter*). Interpretation of NIR sensors will be made with the latest available data.

Visual analysis

Visual symptoms are an excellent diagnostic tool to determine nutrient limitations in crop fields. The visual characteristics displayed when plants are nutrient deficient vary by plant species and variety, stage of growth, and severity of the deficiency, and they are well documented and available as a reference from numerous Extension and industry sources. Visual symptoms of nitrogen deficiency may be used to adjust nitrogen recommendations. Many factors will be taken into account to determine the need for nitrogen, including but not limited to unusual weather conditions, previous crop history, source and amount of nitrogen already applied, crop stage of growth, soil physical properties, disease, insect, herbicide injury, and other factors related to root growth. Typically 20-40 lbs N will be recommended.

Nitrogen reference strip

Several reference strips are established through the field where more than enough nitrogen has been applied and is known to not be limiting. These strips are established for comparison to potential problem spots in the field. It is useful to have reference strips when interpreting soil tests and tissue tests. It is crucial that reference strips be established for a chlorophyll meter be calibrated for each field, previous crop, hybrid, fertilizer and/or manure application and differing soil types. If reference strips are utilized, they will be 12,000 square feet for each 60 acres of crop of each hybrid. If the reference strip is developed using commercial fertilizer, it will receive 10-25% above the recommended rate for the field (Purdue University Fact Sheet AY-317-W), and if manure is used to produce the reference strip, it will be applied at 100% above the recommended rate (Iowa State University Fact Sheet PM 2026, Sensing Nitrogen Stress in Corn). This latter rate is appropriate because there are many sources of variability when using manure, and the reference strip must be fully fertilized.

APPENDIX E

NUTRIENT MANAGEMENT PLAN TERMS

5) COLORADO PHOSPHORUS INDEX RISK ASSESSMENT

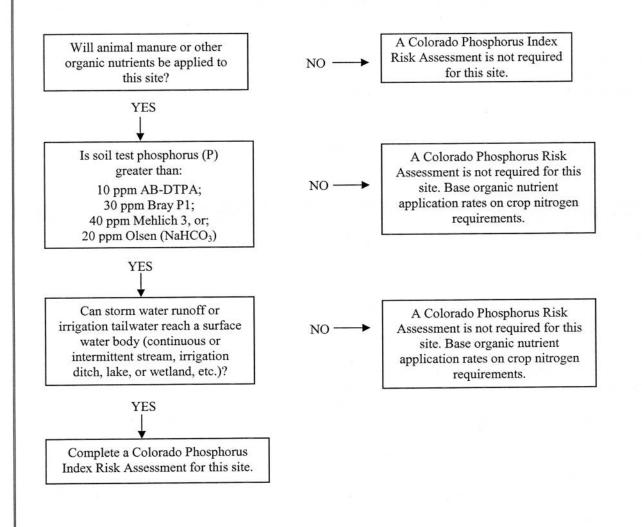
Results from the assessment are provided on the Rate Determination Sheets in Appendix E.

5) PHOSPHORUS AND NITROGEN TRANSPORT

Application rates for manure and process wastewater applied to land application sites minimize phosphorus and nitrogen transport from the application sites to surface waters. An initial assessment of the potential for phosphorus and nitrogen transport risk to surface water will be made prior to manure or process wastewater being applied to an application site. [Regulation No. 61.17(8)(b)(xii)(B)]

There is currently no published tool suitable for assessing nitrogen transport risk. Phosphorus and nitrogen transport risk will be assessed using the Colorado Phosphorus Index Risk Assessment.

The following flow chart will be used to determine if a phosphorus risk assessment must be completed for a land application site:



APPENDIX F

NUTRIENT MANAGEMENT PLAN TERMS

5) FIELD NUTRIENT BALANCE CALCULATIONS

See Rate Determination Sheets.

				-41 Ol-					
Manur		tion - Rate			leet	lessa.			
	7	op sequence/r	otation and ye	ear		Field:	Heinz		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Corn	Corn	Alfalfa	Alfalfa	Alfalfa	1			
1. Field l	nformation:								
Crop:	Corn Silage	_	Crop Year:	2012		Acres:	152		
Soil name	e/texture: San	dy Loam		through 20		Previous Crop		▼	
Soil test re	esults	Date 10/1/2012	N(as NO3-N), 13.5	ppm	P (Olsen) , 59	ppm	K (NH4OA 6	c), ppm	pH 8.0
P	-Index Score	11	Applic	ation rate b	ased upon	Nitrogen	_		
2. Nutrie	nt Needs:			000000000000000000000000000000000000000				N (lb/acre)	P2O5 (lb/a)
a) Expect		ro .*		26.2	Tons, Lbs o	or Bu. / Acre		232	0
*:	nt recommend la Used:	ations 35+(7.5*YG) Tables 7a-8 C	SU Bulletin#	568A					
c) Specia	al nutrient need	ds above recon	nmendations						
d) Total	nutrient need	s						232	0
3. Nitrog	en Credits:					12 72 11 22		Grand	
		credit* (1 foot f	or grass, 2 fee	t for all other	rs)	13.5	ppm NO3	49	_
	us legume cro us manure ap	plication credit	(applic rate x org		pplied	0	10% avail	0	_:
d) Other: e) Total	nitrogen cred	lit						49	-
4. Recon	nmended Nut	trient Applicat	ion Rate:					-	_
				/II / \				183	0
a) Total	nutrient need	l minus Total n	utrient credit	(Ib/acre)				103	- 0
	Sample ID:	SI	urry	Lab #:	17898				
		ation Method:	Slurry broadcast	w/o incorp	~	-			
c) NH4-N d) Expect e) Organ f) Total a		m manure ition rate		9	3.2	0 % 1 lbs/Ton 0 % 8 lbs/Ton lbs/Ton	Ton/acre	2.3 79	
h) Addition	available onal P2O5 nee	3.68 eds from comm	_lbs/Ton ercial fertilizer eently, 60% ava	Analysis		lbs/Ton 0_lbs/acre requently (analy	ysis P2O5 lbs	lbs P2O5/acre /ton x 0.6 or 0.8	290 = available P2O5)
		n, and timing of		Applied v		r truck in sprir			

		Dete	=	ation Ch		-			
Manure		tion - Rate		ation Sh	eet	leialdi	11-1		
			otation and ye	$\overline{}$		Field:	Heinz		1
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Corn	Corn	Alfalfa	Alfalfa	Alfalfa	l			
1. Field In	nformation:								
Crop:	Alfalfa	▼	Crop Year:	2014		Acres:	152		1
Soil name	/texture: San	dy Loam 🔻		through 201	16	Previous Crop			
Soil test re	esults	Date 10/1/2012	N(as NO ₃ -N), 13.5	ppm I	P (Olsen), 59	opm	K (NH4OA 6	c), ppm	pH 8.0
P.	Index Score	11	Applic	ation rate b	ased upon	Nitrogen	_		
2. Nutrie	nt Needs:			and the second	604 CO (1915)			N (lb/acre)	P2O5 (lb/a)
a) Expect		-4:		5.3	Tons, Lbs o	r Bu. / Acre		254	0
*	nt recommend a Used:	(((YG*2000)*(%Protein/6.25) lication # 0.565					204	0
		ds above recon	nmendations						
d) Total ı	nutrient need	s						254	0
3. Nitrog	en Credits:						- 0000	502802	
			for grass, 2 fee	t for all other	rs)	23.8	ppm NO3	49	_
	us legume cro us manure ap	plication credit	(applic rate x org		pplied	458.2	10% avail	46	_
d) Other: e) Total i	nitrogen cred	lit						95	_
4. Recon	nmended Nut	rient Applicat	ion Rate:						_
a) Total ı	nutrient need	minus Total n	utrient credit	(lb/acre)				160	0
	Sample ID:	SI	urry	Lab #:	17898	-			
	Applic	ation Method:	Slurry broadcast	w/o incorp	•	-			
c) NH4-N d) Expec e) Organ f) Total a		m manure ition rate		; ; ;	3.2	0 % 1 lbs/Ton 0 % 3 lbs/Ton 1bs/Ton	Ton/acre	2.3	
	ondoa mana	- app							
g) P2O5	available onal P2O5 nee	3.68 eds from comm	_lbs/Ton ercial fertilizer	Analysis .	4.6	_lbs/Ton lbs/acre		Ibs P2O5/acre	253
P is 80%	available whe	n applied frequ	iently, 60% ava	ailable when	applied infr	equently (analy	sis P2O5 lbs	ton x 0.6 or 0.8	= available P2O5)
		a, and timing of		Unlikely to				eader truck in s	

F			- 	-t' Cl					
Manure	107	tion - Rate		ation Sh	ieet	le:			
		op sequence/r				Field:	Pelz	F-	
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Corn	Alfalfa	Alfalfa	Alfalfa	Alfalfa	l			
1. Field In	formation:								
Crop:	Corn Silage	▼	Crop Year:	2012		Acres:	54		_
Soil name/	texture: San	dy Loam 🔻				Previous Crop			<u></u>
Soil test re	sults	Date 9/30/2011	N(as NO ₃ -N), 179.6	ppm	P (Olsen), p 128	opm	K (NH4OA	c), ppm	pH 7.5
P-1	Index Score	11	Applic	ation rate b	based upon	Nitrogen	_		
2. Nutrien						5 //		N (lb/acre) P2O5 (lb/a)
a) Expecte	ed yield t recommend	ations		26.2	Tons, Lbs c	r Bu. / Acre		232	0
Formula		35+(7.5*YG)	SU Bulletin # 5	568A					
c) Special	nutrient need	ds above recon	nmendations						
	utrient need							232	0
3. Nitroge	en Credits:								
	al soil nitrate us legume cro	credit* (1 foot f	or grass, 2 fee	t for all othe	ers)	179.6	ppm NO3	647	
		plication credit	(applic rate x org Previous Year LE		Applied	504	10% avail	50	
d) Other: e) Total n	itrogen cred	lit						697	_
4. Recom	mended Nu	trient Applicat	ion Rate:						
a) Total n	utrient need	minus Total n	utrient credit	(lb/acre)				0	0
	Sample ID:	Si	urry	_ Lab #:	17898	-			
	Applic	ation Method:	Slurry broadcast	w/o incorp	▼.	-			
c) NH4-N d) Expect e) Organi f) Total av	vailable N ([c	m manure ition rate from manure x {1-b}] + [d x e			3.2	0 % 1 lbs/Ton 0 % 3 lbs/Ton 1bs/Ton		2.3	
Recomme	ended manu	re application	rate (a/f)				Ton/acre	0	
g) P2O5	available nal P2O5 nee	3.68 eds from comm	_lbs/Ton ercial fertilizer	Analysis		_lbs/Ton 0 lbs/acre		Ibs P2O5/ac	re0
P is 80%	available whe	n applied frequ	ently, 60% ava	ailable when			sis P2O5 lbs	/ton x 0.6 or 0	.8 = available P2O5)
Predicted	method, form	n, and timing of	application:	No applic	cation this y	rear			
	AGF DEVELOPERS OF	PROfess	ionals, LL	C					

		D.4.	- 	ation Ch					
Manure		tion - Rate		ation Sh	ieet	1 5:214.	D !-		
		op sequence/r				Field:	Pelz		
Year	2012 Corn	2013	2014	2015	2016 Alfalfa	Farm:	Galeton Dairy	▼	
Crop	Com	Alfalfa	Alfalfa	Alfalfa	Allalla	J			
1. Field In	formation:								
Crop:	Alfalfa	-	Crop Year:	2013	1	Acres:	54		
Soil name/		dy Loam 🔻	orop roun	through 20	16	Previous Crop	Corn Silage	-	
Soil test re		Date	N(as NO ₃ -N),		P (Olsen),		K (NH4OAc), ppm	pН
		9/30/2011	117.2		128		682		7.5
P-,	Index Score	*assumes soil				Nitrogen			
							_		
2. Nutrien	it Needs:							N (lb/acre)	P2O5 (lb/a)
a) Expecte				5.3	Tons, Lbs o	or Bu. / Acre			
b) Nutrien Formula	t recommend	ations (((YG*2000)*(/ Protoin/6 25)	*(0.6)\/0.66\				254	0
Formula	a Useu.	CSU Soil Publ			,				
		v v							
	nutrient need	ds above recom s	nmendations					254	0
3. Nitroge	en Credits:								
a) Residua	al soil nitrate	credit* (1 foot f	or grass, 2 fee	t for all other	rs)	117.2	ppm NO3	422	
	is legume cro		,						
c) Previou	is manure ap	plication credit	(applic rate x org l		applied	0	10% avail	0	==0
					10.00				- 2 3
d) Other:	itrogen cred	li+						422	
e) Total II	ili ogen cred								_
4 Basam	monded Nut	trient Applicati	ion Pate:						
4. Recom	mended Nut	пен Аррисан	on Nate.						_
a) Total n	utrient need	minus Total n	utrient credit	(lb/acre)				0	0
	Sample ID:	SI	ırry	Lab #:	17898				
	-			-		-1			
	Applic	ation Method:	Slurry broadcast	w/o incorp		-			
b) Expect	ed NH3-N ava	ailability			() %			
	available fror					I lbs/Ton			
100 St. 100 St	ed mineraliza c N available	ition rate from manure		17)_% 3 lbs/Ton			
		x {1-b}] + [d x e])	9		lbs/Ton		2.3	
Recomme	ended manui	re application	rate (a/f)				Ton/acre	0	
g) P2O5 a	available	3.68	lbs/Ton	Analysis	4.6	lbs/Ton		lbs P2O5/acre	0
		ds from comme		silahla whan		lbs/acre	sis P2O5 lhs/	ton x 0 6 or 0.8	= available P2O5)
P 18 60% 8	avallable whe	п аррпец пеци	Griuy, 0070 ava	madic Wileli	аррива или	oquonity (undiy	0.01 200 1001		
Predicted	method, form	a, and timing of	application:	No applic	ation this y	ear			
	AGP DEVELOPERS OF	PROfess	ionals, LL	C					

Manure	Applica	tion - Rate	termin	ation Sh	neet					
		op sequence/r		ar		Field:	Pelz			
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		▼	
Crop	Corn	Alfalfa	Alfalfa	Alfalfa	Alfalfa	1				
1. Field In	formation:									
Crop:	Alfalfa	-	Crop Year:	2013		Acres:	54			
Soil name/t		dy Loam 🔻		through 20		Previous Crop			<u> </u>	оН
	Soil test results Date N(as NO3-N), ppm P (Olsen), ppm S (NH4OAc), ppm P/30/2011 54.7 128 *assumes soil nitrate reduced by 225 lbs from previous crop P-Index Score 11 Application rate based upon Nitrogen Nutrient Needs:									
2. Nutrien	t Needs:							N (lb/acre	e)	P2O5 (lb/a)
a) Expecte	ed yield			5.3	Tons, Lbs o	r Bu. / Acre		IT (ID/GOIC	<u>~1</u>	1200 (15/4)
Formula		(((YG*2000)*(CSU Soil Publ	ication # 0.565					254		0
	nutrient need utrient need	ls above recom s	nmendations					254		0
a) Residua b) Previou	3. Nitrogen Credits: a) Residual soil nitrate credit* (1 foot for grass, 2 feet for all others) b) Previous legume crop c) Previous manure application credit (applic rate x org N x % min) Previous Year LBS Organic N Applied 0 10% avail 0									
d) Other: e) Total ni	itrogen cred	it						197		
4. Recom	mended Nut	rient Applicati	on Rate:						_	
a) Total n	utrient need	minus Total n	utrient credit ((lb/acre)				57		0
		ation Method:	Slurry broadcast	Lab #: w/o incorp	17898	-				
c) NH4-N a d) Expecte e) Organic f) Total av	ailable N ([c	n manure			3.21 40) % _lbs/Ton) % B lbs/Ton _lbs/Ton	Ton/acre	2.3 25		
	nal P2O5 nee	3.68 ds from comme		Analysis		_lbs/Ton _lbs/acre equently (analys	sis P2O5 lbs	lbs P2O5/ac		91 available P2O5)
		, and timing of		Unlikely to		d, but if necess				

Manure	Applica	tion - Rate	termin	ation SI	neet	-			
	Cı	rop sequence/r	otation and ye	ear		Field:	Magnuson		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Corn	Corn	Alfalfa	Alfalfa	Alfalfa				
1. Field In	formation:								
Crop:	Corn Silage	-	Crop Year:	2012		Acres:	81		
Soil name/	texture: San	dy Loam 🔻		through 20) 13	Previous Crop	: Corn Silage	▼	
Soil test re		Date	N(as NO3-N),	ppm	P (Olsen),	ppm	K (NH4OA	c), ppm	pH
		9/30/2011	96.1		78		565		7.6
P-	Index Score	11	Applic	ation rate b	based upon	Nitrogen	-		
2. Nutrier	nt Needs:						***************************************	N (lb/ggra)	P2O5 (lb/a)
a) Expecte	ed vield			26.2	Tons, Lbs o	or Bu. / Acre		N (lb/acre)	F205 (Ib/a)
b) Nutrien	t recommend							232	0
Formula	a Used:	35+(7.5*YG)	SU Bulletin # 5	568A					
		Tables Ta-6 C	SO Bulleuil # C	JOOA					
		ds above recon	nmendations					232	0
d) Total n	utrient need	IS						232	-
3. Nitroge	en Credits:								
a) Residu	al soil nitrate	credit* (1 foot f	or grass, 2 feet	t for all othe	ers)	96.1	ppm NO3	346	
b) Previou	us legume cro	ор			•		 446		_
c) Previou	is manure ap	plication credit	(applic rate x org I Previous Year LE		Applied	339	10% avail	34	
			Illitevious real EL	oo organic iv A	тррпец	000			- 1
d) Other:	••	1:4						380	
e) Total n	itrogen cred	ııt							- 1
			D.4						
4. Recom	mended Nu	trient Applicat	ion Rate:						-
a) Total n	utrient need	l minus Total n	utrient credit	(lb/acre)				0	0
	Sample ID:	SI	urry	Lab #:	17898				
	5			-		-			
	Applic	ation Method:	Slurry broadcast	w/o incorp		-			
b) Expect	ed NH3-N av	ailability			() %			
c) NH4-N	available from	m manure				lbs/Ton			
	ed mineraliza c N available	ition rate from manure				0_% 3 lbs/Ton			
' -		x {1-b}] + [d x e	e])			_lbs/Ton		2.3	
Recomme	ended manu	re application	rate (a/f)				Ton/acre	0	
									11100
g) P2O5 a	available	3.68	lbs/Ton	Analysis	4.6	_lbs/Ton		Ibs P2O5/acre	0
P is 80%	nai P2O5 nee available whe	eds from comme	erciai ierulizer iently, 60% ava	ailable when		D Ibslacre equently (analys	sis P2O5 lbs.	/ton x 0.6 or 0.8	= available P2O5)
13 00 / 0 8	- unable will	applica li oqu	,, 0070 000						
Predicted	method, form	n, and timing of	application:	No applic	ation this y	ear			
	AGF DEVELOPERS OF	PROfess	ionals, LL	C					

Ma	nure	Applica	tion - Rate	termir	nation SI	neet		-		
			rop sequence/r		District State of Associate No. No. No. 1		Field:	Magnuson		
7	Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	· •	
Ĭ	Crop	Corn	Corn	Alfalfa	Alfalfa	Alfalfa]			
1.	Field In	formation:								
Cro	p:	Corn Silage	\rightarrow	Crop Year:	2012	7.7	Acres:	8	i	
			dy Loam 🔻		through 20	13	Previous Cro	p: Corn Silage	 	
_	l test re		Date	N(as NO ₃ -N),		P (Olsen),		K (NH4OA	c), ppm	pH
	P-	Index Score		33.6 nitrate reduce <i>Applio</i>	d by 225 lbs			565 —		7.6
2.	Nutrier	t Needs:					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		NI (Ib/s are)	DoOs (lb/s)
a)	Expecte	ed yield			26.2	Tons, Lbs	or Bu. / Acre		N (lb/acre)	P2O5 (lb/a)
b)	Nutrien	t recommend							232	0
	Formula	a Used:	35+(7.5*YG) Tables 7a-8 C	SU Bulletin#	568A					
c)	Special	nutrient nee	ds above recon	nmendations					·	
d)	Total n	utrient need	ls						232	0
3.	Nitroge	n Credits:								
a)	Residu	al soil nitrate	credit* (1 foot f	or grass, 2 fee	t for all othe	rs)	33.6	ppm NO3	121	_
		is legume cro		(lists v	Nu 0/ min \					
(C)	Previou	is manure ap	plication credit	Previous Year LI		Applied		10% avail	0	-
	Other:	itrogen cred	lit						121	
,		3								78
4.	Recom	mended Nu	trient Applicat	ion Rate:						_
a)	Total n	utrient need	I minus Total n	utrient credit	(lb/acre)				111	0
		Sample ID:	SI	urry	_ Lab #:	17898	_			
		Applic	ation Method:	Slurry broadcast	: w/o incorp	-	_			
b)	Expect	ed NH3-N av	ailability				0 %			
c)	NH4-N	available fror	m manure			3.2	1 lbs/Ton			
		ed mineraliza	tion rate from manure				<u>0</u> % 8 lbs/Ton			
			x {1-b}] + [d x e	e])			_lbs/Ton		2.3	
Re	comme	ended manu	re application	rate (a/f)				Ton/acre	48	
g)	P2O5 a	available	3.68 eds from comm	_lbs/Ton ercial fertilizer	Analysis	4.6	_ lbs/Ton 0 lbs/acre		Ibs P2O5/acre	175
					ailable when			ysis P2O5 lbs	/ton x 0.6 or 0.8 =	available P2O5)
Pre	dicted	method, form	n, and timing of	application:	Applied v	ia spreade	r truck in sprir	ng and fall		
		AGP DEVELOPERS OF	PRO fess	ionals, LL	C					

Manura	Annlina	tion Date	tormin	ation Sh	noot					
Manure		tion - Rate			ieet	Tield:	Manager			
		op sequence/r	Construction of the Constr		2222		Magnuson			
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		•	
Crop	Corn	Corn	Alfalfa	Alfalfa	Alfalfa	1				
1. Field In	formation:				_					
Crop:	Alfalfa	-	Crop Year:	2014]	Acres:				
Soil name/	texture: San	dy Loam 🔻		through 20		Previous Crop			~	
Soil test rea	sults	Date	N(as NO ₃ -N),	ppm	P (Olsen), p	ppm	K (NH4OA	c), ppm		pH
		9/30/2011	33.6	nitrate redu	78 iced by 225	lbs from 2012 c	565 rop			7.6
P-I	ndex Score	11				Nitrogen	.00			
2. Nutrien				F 2	Tons, Lbs o	or Du / Agro		N (lb/acr	<u>e)</u>	P2O5 (lb/a)
a) Expecte b) Nutrient	ea yieia : recommend	lations		5.3	TORS, LDS C	or bu. / Acre		254		0
Formula		(((YG*2000)*(%Protein/6.25) lication # 0.565)					
c) Special	nutrient nee	ds above recom	mendations							
	utrient need		mondations					254		0
20										
3. Nitroge	n Credits:									
a) Residua	al soil nitrate	credit* (1 foot f	or grass, 2 feet	for all other	rs)	33.6	ppm NO3	121		
b) Previou	s legume cro	p			5-71.00					
c) Previou	s manure ap	plication credit	(applic rate x org f Previous Year LB		polied	365	10% avail	37		
		ļ	Illerious real Lb	S Organic N A	pplied	303	_ 10 % avaii			
d) Other:								457		
e) Total n	itrogen cred	lit						157		
4. Recom	mended Nu	trient Applicati	on Rate:							
a) Total n	utriant naad	l minus Total n	utriant cradit (Ib/acre)				97		0
a) Total II	utnent need	i illilius Total II	utilent credit (ibracie						·
	Sample ID:	SI	ırry	Lab #:	17898					
	A!:-	ation Method:	Slurny broadcast	w/o incorn	-	-0.6				
	Applic	ation wethou:	Sidily broadcast	W/O IIICOI P		-				
b) Expecte	ed NH3-N av	ailability) %				
	available from					l lbs/Ton				
	ed mineraliza)_% 3 lbs/Ton				
		from manure $x \{1-b\}$] + [d x e	1)			lbs/Ton		2.3		
		re application				-	Ton/acre	42		
g) P2O5 a	vailable	3.68	lbs/Ton	Analysis	4.6	lbs/Ton		lbs P2O5/a	icre	154
h) Addition	nal P2O5 nee	eds from comme	ercial fertilizer			bs/acre				
P is 80% a	vailable whe	n applied frequ	ently, 60% ava	ilable when	applied infr	equently (analys	sis P2O5 lbs	ton x 0.6 or	0.8 =	available P2O5)
D 11 . 1		d si! C	liaati	Halikalı 4	o ho annlio	d, but if necess	eary via enr	ader truck	in en	ring and fall
Predicted i	netnod, form	a, and timing of	аррисацоп:	Officery to	o ne applie	u, but ii liecess	ary via spit	Judoi tidok	sp	9
	AGF DEVELOPERS OF	PROfess	ionals, LL	С						7/

			_						
Manure	Applicat	tion - Rate	termin	ation SI	neet	_			
	Cr	op sequence/r	otation and ye	ar		Field:	East Flood		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	-	
Crop	Corn	Corn	Corn	Corn	Corn				
1. Field In	formation:	D							
Crani	C C!!	_	Crop Year:	2012	7	Acres:	22	•	
Crop:	Corn Silage		Crop rear.	2012	_	Previous Crop		~	
Soil name/ Soil test re	And the second s	Loam T	N(as NO ₃ -N),	nnm	P (Olsen),		K (NH4OA	c), ppm	pH
Son test re	Suits	11/9/2011	174.4	ppiii	111	ppiii	681	о,, рр	7.8
P-1	Index Score	11	Applic	ation rate b	pased upor	Nitrogen	_		
2. Nutrien	nt Needs:								
								N (lb/acre)	P2O5 (lb/a)
a) Expecte				26.2	Tons, Lbs	or Bu. / Acre		232	0
b) Nutrient Formula	t recommenda Lised:	35+(7.5*YG)							0
l onnaic	a 000u.		SU Bulletin # 5	68A					
		lb	dotiono						
	nutrient need	ls above recon s	imendations					232	0
55 7 0. 505.650000									
3. Nitroge	en Credits:								
a) Residua	al soil nitrate	credit* (1 foot f	or grass, 2 feet	for all othe	rs)	174.4	ppm NO3	628	
b) Previou	is legume cro	р			,		-1 · · ·	A	
c) Previou	is manure app		(applic rate x org I		\!:_d	0	10% avail	0	
			Previous Year LB	SS Organic N A	Арриеа		_ 10 % avaii		_
d) Other:									
e) Total n	itrogen cred	it						628	-
4. Recom	mended Nut	rient Applicat	ion Rate:						
a) Total n	utrient need	minus Total n	utrient credit ((lb/acre)				0	0
a) Iotai ii	uti ient neeu	minus rotarn	datoni orodici	(15/45/5)					
	Sample ID:	Sit	urry	Lab #:	17898	_			
	Applica	ation Method:	Slurry broadcast	w/o incorp	▼	_			
h) Expect	ed NH3-N ava	ailability				0 %			
	available fron					1 lbs/Ton			
d) Expecte	ed mineraliza	tion rate				0 %			
	c N available	from manure x {1-b}] + [d x e	1)		5.	8 lbs/Ton lbs/Ton		2.3	
		e application			<u></u>	_155/1611	Ton/acre	0	
			10 (25)						
g) P2O5 a	wailahla	3.68	lbs/Ton	Analysis	4.6	lbs/Ton		Ibs P2O5/acre	0
h) Additio	nal P2O5 nee	ds from comm	ercial fertilizer	8 0		0 lbs/acre			
P is 80% a	available whe	n applied frequ	ently, 60% ava	ilable when	applied inf	requently (analys	sis P2O5 lbs/	/ton x 0.6 or 0.8	= available P2O5)
D 1'1		and timing of	'annliagtion:	No applia	ation this	/ear			
	memoa, form	, and timing of	аррисацоп:	NO applic	auvii uiis j	cai			
	AGP DEVELOPERS OF	RO fess	ionals, LL	С					

				-						
Mar	ure	Applica	tion - Rate	termin	ation Sh	neet				
		Cr	op sequence/r	otation and ye	ear		Field:	East Flood		
Ye	ar	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	-	
Cr	ор	Corn	Corn	Corn	Corn	Corn				*
1. Fie	eld Inf	ormation:					_			
Cron.	Г	Corn Silage	V	Crop Year:	2013	1	Acres:	22	•	
Crop:				Crop rear.	2013		Previous Crop		-	
	ame/te est res		Loam Date	N(as NO ₃ -N),	nom	P (Olsen),		K (NH4OA	c), ppm	pH
0011 10	701 100	ano	11/9/2011	112	pp	111		681	-,, p-p	7.8
	P-Ir	ndex Score	*assumes soil		d by 225 lbs ation rate b			_		
2. Nu	trient	Needs:								
									N (lb/acre)	P2O5 (lb/a)
		d yield	latiana.		26.2	Tons, Lbs	or Bu. / Acre		232	0
		recommend Used:	35+(7.5*YG)							
'	maia	ood.	Tables 7a-8 C	SU Bulletin # 5	568A					
, ,			1 1							
		nutrient need I trient need	ds above recon	imendations					232	0
۳,	, tui 110									
3. Ni	troger	Credits:								
a) Pe	eidua	l soil nitrate	credit* (1 foot f	or arass 2 fee	t for all other	rs)	112	ppm NO3	403	
		legume cro		or grass, 2 100	t for all out of	.5)	112			_
			plication credit					-	•	
				Previous Year LE	BS Organic N A	Applied	0	10% avail	0	_
d) Ot	her:									
,		trogen cred	lit						403	_
4. Re	comr	nended Nut	trient Applicati	on Rate:						
20070-20070-					/II / \					
a) To	tal nu	itrient need	l minus Total n	utrient credit	(lb/acre)				0	0
		Sample ID:	SI	ırry	Lab #:	17898				
					•		_			
		Applic	ation Method:	Slurry broadcast	w/o incorp					
h) E	necte	d NH3-N ava	ailahility				0 %			
		vailable from					1 lbs/Ton			
d) Ex	pecte	d mineraliza	ition rate		,		0 %			
			from manure	•		5.	8 lbs/Ton		2.3	
			x {1-b}] + [d x e re application		3		_ lbs/Ton	Ton/acre	0	
11000	iiiiici	raca mana	о арриоанон							
		22 292					U /T		Iba DoOr/-	0
g) P:	205 av	vailable al P2O5 nee	3.68 ds from comme	lbs/Ton ercial fertilizer	Analysis	4.6	_ lbs/Ton 0 lbs/acre		Ibs P2O5/acre	0
					ailable when			rsis P2O5 lbs/	ton x 0.6 or 0.8	= available P2O5)
				5000 ON C	VALUE OF THE REAL PROPERTY.	3A30 5989973				
Predi	cted n	ethod, form	a, and timing of	application:	No applic	ation this	/ear			
		AGP DEVELOPERS OF	PROfess	ionals, LL	С					

Manure	Applicat	tion - Rate	termin	ation Sh	eet	7			
	Cr	op sequence/r	otation and ye	ar		Field:	East Flood		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	▼	
Crop	Corn	Corn	Corn	Corn	Corn	J			
1. Field In	formation:								
Crop:	Corn Silage	_	Crop Year:	2014		Acres:	22		
Soil name/t		Loam		through 20	16	Previous Crop	: Corn Silage	▼	
Soil test res		Date	N(as NO ₃ -N),		P (Olsen),	ppm	K (NH4OA	c), ppm	рН
P-I	ndex Score	11/9/2011 *assumes soil 11		d by 225 lbs ation rate b			681		7.8
2. Nutrien	t Needs:							N1 (III 1)	DoOs (Ib/s)
a) Expecte	nd vield			26.2	Tons I bs	or Bu. / Acre		N (lb/acre)	P2O5 (lb/a)
	recommend	ations			10110, 200	J. 24. / / 10. 0		232	0
Formula	Used:	35+(7.5*YG) Tables 7a-8 C	SU Bulletin # 5	568A					
		ds above recom	mendations						
d) Total n	utrient need	s						232	0
3. Nitroge	n Credits:				1111		_	0.00	
		credit* (1 foot fo	or grass, 2 feet	for all other	rs)	49.4	ppm NO3	178	-
	s legume cro s manure app	plication credit	applic rate x org I		pplied	0	10% avail	0	_
d) Other: e) Total ni	itrogen cred	it						178	-
4. Recom	mended Nut	rient Applicati	on Rate:	1	100				_
		• • • • • • • • • • • • • • • • • • • •		(11- /)				E4	0
a) Total n	utrient need	minus Total n	utrient credit ((ib/acre)				54	U
	Sample ID:	Slu	ırry	Lab #:	17898				
	Applica	ation Method:	Slurry broadcast	w/o incorp	_	_			
c) NH4-N a d) Expecte	ed NH3-N ava available from ed mineraliza	n manure			3.2 4	0 % 1 lbs/Ton 0 % 8 lbs/Ton			
f) Total av	ailable N ([c	x {1-b}] + [d x e re application				lbs/Ton	Ton/acre	2.3 23	
	nal P2O5 nee	3.68 ds from comme		Analysis .		_ lbs/Ton 0 lbs/acre		Ibs P2O5/acre	85
P is 80% a	vailable whe	n applied frequ	ently, 60% ava	ilable when	applied infi	equently (analy	sis P2O5 lbs/	ton x 0.6 or 0.8 =	available P2O5)
Predicted r	AGP	, and timing of	application:		a spreade	r truck in sprin	g and incorp	orated within tv	vo weeks

	A l'	tion Data		ation Cl	t				
Manure		tion - Rate		ation Sh	ieet	leiala.	D - E-		
		op sequence/r				Field:	Bruner Eas		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Com	Alfalfa	Alfalfa	Alfalfa	Alfalfa				
1. Field In	formation:								
Crop:	Corn Silage		Crop Year:	2012		Acres:	65		1
Soil name/	texture: Sand	dy Loam 🔻				Previous Crop		▼	
Soil test re	sults	Date 11/9/2011	N(as NO ₃ -N), 35.1	ppm	P (Olsen), ₆₉	opm	K (NH4OA) 365	c), ppm	pH 7.9
P-1	Index Score	11	Applic	ation rate b	based upon	Nitrogen	_		
2. Nutrien					220 1970			N (lb/acre)	P2O5 (lb/a)
a) Expecte	ed yield t recommend	ations		26.2	Tons, Lbs o	r Bu. / Acre		232	0
Formula		35+(7.5*YG) Tables 7a-8 C	SU Bulletin#5	568A					-
c) Special	nutrient need	ds above recon	nmendations						
d) Total n	utrient need	s						232	0
3. Nitroge	en Credits:								
a) Residua	al soil nitrate	credit* (1 foot f	or grass, 2 fee	t for all othe	ers)	35.1	ppm NO3	126	
	is legume cro		(analia rota y ora	N v 9/ min \					
c) Previou	is manure ap	plication credit	(applic rate x org		Applied	0	10% avail	0	-
d) Other: e) Total n	itrogen cred	lit						126	- 1
4. Recom	mended Nut	rient Applicat	ion Rate:						_
a) Total n	utrient need	minus Total n	utrient credit	(lb/acre)				105	0
	Sample ID:	Sit	urry	Lab #:	17898	-			
	Applic	ation Method:	Slurry broadcast	w/o incorp	▼	-			
c) NH4-N	ed NH3-N ava available fror ed mineraliza	n manure			3.2)_% _lbs/Ton } %			
e) Organi	c N available	from manure			5.8	B lbs/Ton			
		x {1-b}] + [d x e re application				_lbs/Ton	Ton/acre	2.3 45	
Kecomine	mueu manui	e application	rate (arry						
g) P2O5 a	available	3.68	_lbs/Ton	Analysis		_lbs/Ton		Ibs P2O5/acre	167
		ds from comm		ailahle when		bs/acre	sis P2O5 lbs	/ton x 0.6 or 0.8	= available P2O5)
F 18 00% 8	avaliable wile	п аррпеч печи	only, 0070 ave						
Predicted	method, form	, and timing of	application:	Unlikely t	to be applie	d, but if neces	sary via spr	eader truck in s	spring and fall
	AGP DEVELOPERS OF	PRO fess	ionals, LL	.C					

Manure	Applica	tion - Rate	termin	ation Sh	neet				
mançare			otation and ye			Field:	Bruner Eas	t	
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	-	
Crop	Corn	Alfalfa	Alfalfa	Alfalfa	Alfalfa		try		
1. Field In	formation:					-			
Crop:	Alfalfa	[▼]	Crop Year:	2013		Acres:	65	i	
Soil name/	texture: San	dy Loam		through 20		Previous Cro		<u> </u>	
Soil test re	sults	Date 11/9/2011	N(as NO3-N), 35.1	ppm	P (Olsen), 69	ppm	K (NH4OA 6 365	c), ppm	pH 7.9
P-1	Index Score	11	Applic	ation rate b	ased upon	Nitrogen	_		
2. Nutrien	t Needs:							N (lb/acre)	P2O5 (lb/a)
a) Expecte	ed yield			5.3	Tons, Lbs o	or Bu. / Acre			1 203 (15/4)
	t recommend		0/ Dt-:-/C 25)	*(0 6)\/0 66\	·			254	0
Formula	a Used:		%Protein/6.25) lication # 0.565		1				
		ds above recor	nmendations					254	0
d) Total n	utrient need	S						254	0
3. Nitroge	en Credits:								*
a) Residua	al soil nitrate	credit* (1 foot f	for grass, 2 fee	t for all othe	rs)	35.1	ppm NO3	126	-
	is legume cro		(applic rate x org	N v % min)					
c) Fleviou	is manure ap	piloation credit	Previous Year LE		pplied	423	10% avail	42	-
d) Other: e) Total n	itrogen cred	lit						169	-
4. Recom	mended Nut	rient Applicat	ion Rate:			Plant Committee			_
a) Total n	utriant need	minus Total n	utrient credit	(lh/acre)				86	0
a) Total II	uti ient necu	minus rotarn	du lone or care	(ID/GOTO)					
	Sample ID:	SI	urry	Lab #:	17898	-			
	Applic	ation Method:	Slurry broadcast	w/o incorp	▼	_			
b) Expecte	ed NH3-N ava	ailability			() %			
c) NH4-N	available fror	n manure				Ibs/Ton			
	ed mineraliza	tion rate from manure		8)_% 3 lbs/Ton			
		x {1-b}] + [d x e	e])	3	0.0	lbs/Ton		2.3	
Recomme	ended manui	e application	rate (a/f)				Ton/acre	37	
		A = 40 = 100	M. St. Co. Co.	■ Complete ■ Select and select				Ib - DeOc	400
g) P2O5 a h) Addition	available nal P2O5 nee	3.68 ds from comm	_lbs/Ton ercial fertilizer	Analysis	4.6	_lbs/Ton lbs/acre		lbs P2O5/acre	136
				ailable when			lysis P2O5 lbs/	ton x 0.6 or 0.8 =	available P2O5)
Predicted 1	method, form	, and timing of	application:	Unlikely to	o be applie	d, but if nece	ssary via spre	eader truck in sp	oring and fall
	AGP DEVELOPERS OF	RO fess	ionals, LL	С					

Wastewa	ter Appli	cation -	ite Dete	rminati	on Sheet	7 ₹			
	-		otation and y	ear		Field:	East Flood		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Corn	Corn	Corn	Corn	Corn				
1. Field Info	rmation:				1				
Crop:	Corn Silage	-	Crop Year:	2012		Acres:	22		
Soil name/te:	kture: Clay	Loam 🔻				Previous Crop.	Alfalfa	▼	
Soil test resu	lts	Date 11/9/2011	N(as NO3-N), 174.4	ppm	P (Olsen), p _l 111	pm	K (NH4OAc) 681	, ppm	pH 7.8
P-1	ndex Score	11	Applio	cation rate	based upon	Nitrogen	<u></u>		
2. Nutrient	Needs:							N (lb/acre)	P2O5 (lb/a)
a) Expected	yield			26.2	Tons, Lbs or	Bu. / Acre		-	
b) Nutrient r			• • • • • • • • • • • • • • • • • • • •				4	232	0
Formula l	Jsed:	35+(7.5*YG Tables 7a-8	3 CSU Bulletin	# 568A					
c) Special n		above recor	nmendations				£	020	0
d) Total nut	rient needs							232	0
3. Nitrogen	Credits:								
		edit* (1 foot	for grass, 2 fee	et for all oth	ners)	174.4	ppm NO3	628	-
b) Previous	legume crop manure appli	cation credit	(applic rate x	ora N x % r	min)				-
o) Trevious	manare app.		Previous Year LB			0	10% avail	0	-
d) Other:									
e) Total nit	ogen credit							628	-
4. Recomm	ended Nutri	ent Applica	tion Rate:						-
a) Total nuti	ient need mi	nus Total nu	trient credit (lb	/acre)				0	0
	Sample ID:	Po	ond 6	Lab #:	17902	_			
	Applicati	on method:	Flood	~]				
b) Expected	NH3-N avail	ability				3 %			
c) NH4-N a						7_lbs/1000 gal) %			
d) Expected e) Organic I						7 lbs/1000 gal			
f) Total avai	lable N ([c x	{1-b}] + [d x	e])			lbs/1000 gal	Callagra	0.8	
Recommen	ded manure	application	rate (a/f)				Gal/acre ac-in/acre	0.0	
Typu Parkers		(U1-10-10-10-1		•	4.07	Iba/4000!		Ibs P2O5/acre	0
g) P2O5 av	ailable al P2O5 need	1.50	_lbs/1000 gal nercial fertilize		1.87	_lbs/1000 gal lbs/acre		IDS P205/acre	
P is 80% avai	lable when ap	plied frequent	ly, 60% availabl	e when appli	ied infrequently	(analysis P2O5 l	lbs/ton x 0.6 or	0.8 = available P	205)
Predicted m	ethod, form,	and timing o	f application:	No applic	cation this ye	ar			
DEV	GPF ELOPERS OF AGRI	Ofessi CULTURE	onals, LLC	2					

Wastewa	ter Appl	ication ·	ite Dete	rminati	on Sheet				
	Cro	p sequence/r	otation and y	ear		Field:	Ley		1
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	▼	
Crop	Alfalfa	Corn	Corn	Corn	Corn]			
1. Field Info	rmation:								
Crop:	Alfalfa		Crop Year:	2012		Acres:	115		
Soil name/te	xture: San	ndy Loam 🔻				Previous Crop.	Alfalfa	▼	
Soil test resu	lts	Date 11/9/2011	N(as NO ₃ -N), 24.8	ppm	P (Olsen), p 81	pm	K (NH4OAc) 670), ppm	pH 8.6
P-I	Index Score	10	Applio	ation rate	based upon	Nitrogen	_		
2. Nutrient	Needs:							N (lb/acre)	P2O5 (lb/a)
a) Expected b) Nutrient re		tions	8	5.3	Tons, Lbs or	Bu. / Acre		254	
Formula U		(((YG*2000))*(%Protein/6.2 ublication # 0.5		.66)		99	201	
c) Special nu	utrient needs	above recor	nmendations						
d) Total nut	rient needs						- 1	254	0
3. Nitrogen	Credits:								
a) Residual	soil nitrate cr	edit* (1 foot f	for grass, 2 fee	et for all oth	ers)	24.8	ppm NO3	89	
b) Previous			(applic rate x	ora N x % n	nin)				
c) Trevious	manare appr		Previous Year LB			100	10% avail	10	-:
d) Other: e) Total nitr	ogen credit						,	99	
	d - d N- 4-!	ant Annline	ion Botos						
4. Recomm	enaea Nutri	ent Applicat	ion Kate.				,		-
a) Total nutr	ient need mi	nus Total nut	rient credit (lb/	/acre)				155	0
	Sample ID:	Po	nd 6	Lab #:	17902	-			
	Applicati	on method:	Sprinkler	~					
b) Expected	NH3-N avail	ability				5 %			
c) NH4-N av						/_lbs/1000 gal) %			
d) Expected e) Organic N						/ lbs/1000 gal			
f) Total avai						lbs/1000 gal	Gal/acre	0.7 208,355	
Recommend	ded manure	application	rate (a/i)				ac-in/acre	7.6	
g) P2O5 av	ailable	1.50	lbs/1000 gal	Analysis	1.87	lbs/1000 gal		lbs P2O5/acre	312
h) Additiona	I P2O5 need	s from comm	nercial fertilizer		0	lbs/acre (analysis P2O5 li	bs/ton x 0.6 or		205)
	*****					oring, summer			
Predicted me	anou, iorm,	and tilling of	аррисанон:	Applied VI	ia pivot iii sp	ziniy, summer	ana ian		
DEV	AGPR	CULTURE	onals, LLC	l.					

Wastewa	ter Appl	ication ·	ate Dete	rminati	on Sheet				
			otation and y	ear		Field:	Ley		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy	~	
Crop	Alfalfa	Corn	Corn	Corn	Corn				
1. Field Info	ormation:								
Crop:	Corn Silage	-	Crop Year:	2013		Acres:	115		
Soil name/te	xture: San	dy Loam ▼				Previous Crop	: Alfalfa		
Soil test resu	ılts	Date 11/9/2011	N(as NO3-N), 24.8	ppm	P (Olsen), p 81	pm	K (NH4OAc) 670), ppm	pH 8.6
P-1	ndex Score	10	Applio	cation rate	based upon	Nitrogen	<u></u>		
2. Nutrient	Needs:							N (lb/acre)	P2O5 (lb/a)
a) Expected				26.2	Tons, Lbs or	Bu. / Acre		232	
b) Nutrient re Formula l		35+(7.5*YG	i) CSU Bulletin	# 568A				202	
c) Special n	utrient needs	above recor	nmendations						
d) Total nut								232	0
3. Nitrogen	Credits:								
		edit* (1 foot	for grass, 2 fee	et for all oth	ers)	24.8	ppm NO3	89	_
b) Previous		cation credit	(applic rate x	ora N x % r	nin)			60	-
c) i ievious	тапаго арри		Previous Year LB			452	10% avail	45	-
d) Other: e) Total nitr	ogen credit							194	
,	.						!		
4. Recomm	ended Nutri	ent Applicat	tion Rate:						_
a) Total nutr	ient need mi	nus Total nut	rient credit (lb	/acre)			9	37	0
	Sample ID:	Po	and 6	Lab #:	17902	_			
	Application	on method:	Sprinkler	•					
b) Expected	NH3-N avail	ability			55	5 %			
c) NH4-N av						bs/1000 gal %			
d) Expected e) Organic N						7 lbs/1000 gal			
f) Total avai	lable N ([c x	(1-b)] + [d x 6				lbs/1000 gal	0-11	0.7 49,725	
Recommend	ded manure	application	rate (a/f)				Gal/acre ac-in/acre	1.8	
-\ P005	-!!	4.50	lba/1000 ==!	Analysis	1.87	lbs/1000 gal	and the second s	Ibs P2O5/acre	74
	I P2O5 need		Ibs/1000 gal nercial fertilizer	r	- 0	bs/acre	he/top v 0 6 or		
P is 80% avail	abie when api	oilea trequenti	y, ou% available	ғ wпеп арріі	eu iriirequently	(analysis P2O5 l	DOLLOT X U.O OF	o.o – avaliable F.	200)
Predicted me	ethod, form,	and timing of	f application:	Applied vi	ia pivot in sp	oring, summer	and fall		
DEVI	GPR ELOPERS OF AGRIF	CULTURE fession	onals, LLC	:					

Wastewa	ter Ap	plication -	ite Dete	rminati	on Sheet				
A.——	-	rop sequence/	rotation and y	ear		Field:	Ley		
Year	2012	2013	2014	2015	2016	Farm:	Galeton Dairy		
Crop	Alfalfa	Corn	Corn	Corn	Corn	1			
1. Field Info	ormation:					- e			
Crop:	Corn Silage	•	Crop Year:	2014		Acres:	115	[]	
Soil name/te:	xture:	Sandy Loam		through 20	16	Previous Crop	: Corn Silage	~	
Soil test resu	ılts	Date 11/9/2011	N(as NO ₃ -N), 24.8	ppm	P (Olsen), p 81	pm	K (NH4OAc) 670), ppm	pH 8.6
P-I	Index Sco	ore 10	Applio	cation rate	based upon	Nitrogen	_		
2. Nutrient								N (lb/acre)	P2O5 (lb/a)
a) Expected b) Nutrient re		dations		26.2	Tons, Lbs or	Bu. / Acre		232	
Formula U		35+(7.5*YC	6) 3 CSU Bulletin	# 568A					
		eds above reco	mmendations					000	0
d) Total nut	trient nee	ds					ï	232	
3. Nitrogen	Credits:								
		credit* (1 foot	for grass, 2 fee	et for all oth	ers)	24.8	ppm NO3	89	,
b) Previous		op oplication credi	(applic rate x	org N x % r	min)			<u>.</u>	
0, 1.1011000			Previous Year LB			108	10% avail	11	
d) Other: e) Total niti	rogen cre	dit					,	100	,
4. Recomm	ended Nu	itrient Applica	tion Rate:						
a) Total nutr	rient need	minus Total nu	trient credit (Ib	/acre)			ä	131	0
	Sample	D:	ond 6	Lab #:	17902	-			
	Applic	ation method:	Sprinkler	~					
b) Expected	I NH3-N av	ailability				5 %			
c) NH4-N av						bs/1000 gal			
		from manure				7 lbs/1000 gal			
		x {1-b}] + [d x re application				lbs/1000 gal	Gal/acre	0.7 176,521	
Recommen	ueu manc	ne application	rate (a/r)				ac-in/acre	6.4	
g) P2O5 av		1.50	_lbs/1000 gal		1.87	_lbs/1000 gal		lbs P2O5/acre	264
h) Additiona P is 80% avai	l P2O5 ne lable when	eeds from comr applied frequent	nercial fertilize ly, 60% availabl	r e when appli		bs/acre (analysis P2O5	lbs/ton x 0.6 or	0.8 = available P2	?O5)
Predicted me	ethod, for	n, and timing o	f application:	Applied v	ia pivot in sp	oring, summer	and fall		
DEV	AGP	RO fessi	onals, LLC	2					